



ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY

**Environment, Health, & Safety
Training Program**

EHS 400 ~ Radiation Protection Fundamentals

Course Syllabus

Subject Category: Radiation Protection
Course Length: 3 hours
Delivery Mode: Class
Schedule: Monthly or by special request
Location/Time: Bldg. 51-201

Course Prerequisite: No
Medical Approval: No

Course Purpose: This course is designed to inform employees of the health and safety risks of radiation exposure, and to enable them to work safely with radiation sources and radioactive materials at Berkeley Lab. This introductory course is mandatory prior to commencing work with radiation under most Radiation Work Authorizations (RWAs) and Sealed Source Authorizations (SSAs) and some Radiation Work Permits (RWPs). Other radiation protection courses may also be required and will be specified in the RWA, SSA or RWP covering the work.

Course Objectives: EH&S 400 covers the following topics:

- Risks of exposure to radiation and radioactive material, including prenatal radiation exposure
- Basic radiological fundamentals and radiation protection concepts
- Administrative and engineering controls, programs, and policies for maintaining radiation doses as low as reasonably achievable (ALARA), including both routine and emergency actions
- Individual rights and responsibilities for implementing ALARA measures
- Individual monitoring procedures and availability of exposure reports

Course Instructional Materials:

- Overhead Projector
- VCR for Video "*Working Safely with Radiation*"
- Paper flip chart and white board
- Consumer Products containing radioactive materials
- Geiger Counter Beta-Gamma Survey Meter
- Air Proportional Alpha Survey Meter
- Radiation safety postings and signs

Instructors:

Gary Zeman (x6626)
Christine Donahue (x7736)
Robert Fairchild (2278)

Training Compliance Requirements: This course is designed to meet, in part, the requirements of 10CFR835 section 901 (b), which states that each individual shall demonstrate knowledge of radiation safety topics:

1. before being permitted unescorted access to radiological areas, and
2. before performing unescorted assignments as a radiological worker.

Other training, such as EH&S 432 or 438 may also be required depending on the work assignment.

Course Hand-outs:

- Outline of slides
- Course Manual
- Natural radioactive decay series chart
- Emergency Procedures guide

Participant Evaluation: Written evaluations regarding the effectiveness of the trainer, the training, and the visual aids.

Written Exam: Yes. Students must score at least 80% on a multiple choice exam to pass the course.

Practical Exam: No

Retraining/Recertification: 2 years. Retraining is normally accomplished as part of the annual renewal of radiation work authorizations (RWA, SSA or RWP).

Challenge exam: A challenge exam may be taken, in lieu of attending the class, by individuals with adequate prior training and experience in radiation protection. Contact the Radiation Control Manager (x6626) for information on taking the challenge exam.

WEB Resource: see LBNL EH&S Training Program web page @ <http://www.lbl.gov/ehs/html/training.htm>.